Claims

[c1] A node detecting method for detecting a node that operates as a device in a computer network, comprising:

a first transmitting step of transmitting a first detection signal to said node;

a first receiving step of receiving, from said node that received said first detection signal, address information of said node;

a first storing step of storing in a first memory said address information of said node received in said first receiving step;

a second transmitting step of transmitting a second detection signal to said node by using said address information of said node stored in said first memory;

a second receiving step of receiving, from said node that received said second detection signal, classification information of said node in response to said second detection signal;

a judging step of judging a classification of said node based on said classification information of said node received in said second receiving step; and

a second storing step of storing said classification information of said node in a second memory to correspond to said classification of said node.

[c2] A node detecting method as claimed in claim 1, wherein
said first transmitting step includes transmitting an ICMP echo message as said first detection signal to a plurality of nodes by using a broadcast address of a predetermined subnet,
said first receiving step includes receiving, from at least one of said plurality of nodes that responds to said ICMP echo message, an IP address thereof as said address information, and
said first storing step includes storing said IP address of said at least one node.

[c3] A node detecting method as claimed in claim 1, wherein
said second transmitting step includes transmitting an ICMP echo message as said second detection signal to said node based upon said address

information stored in said first memory,

said second receiving step includes receiving, from said node that responds to said ICMP echo message, an IP address of said node as said classification information,

said judging step includes judging that said node that sent said IP address is an IP node, and

said second storing step includes storing said node as the IP node to correspond to said IP address.

[c4]   A node detecting method as claimed in claim 1, wherein

said second transmitting step includes transmitting an ICMP echo message as said second detection signal to said node stored in said first memory,

said first receiving step includes receiving from said node an MAC address of said node,

said judging step includes judging that said node that received said ICMP echo message is a MAC node when there is no response from said node that received said ICMP echo message, and

said second storing step includes storing said node as the MAC node to correspond to said MAC address.

[c5]   A node detecting method as claimed in claim 3, wherein

said second transmitting step further includes transmitting a detection signal according to an SNMP protocol to said node based upon said address information stored in said first memory,

said second receiving step includes receiving, from said node that received said detection signal according to said SNMP protocol, SNMP information of said node,

said judging step includes judging that said node that sent said SNMP information is an SNMP node, and

said second storing step includes storing said node as the SNMP node to correspond to said SNMP information.

[c6]

A node detecting method as claimed in claim 5, wherein

said judging step includes judging based on said SNMP information whether or not said node is an interconnecting device, and

said second storing step includes storing said node as an interconnecting node to correspond to said SNMP information, when said node is judged to be said interconnecting device in said judging.

[c7]   A node detecting method a claimed in claim 6, further comprising:

a third receiving step of receiving, from said interconnecting node, port identifying information for identifying a port of said interconnecting node and node identifying information of a node connected to said port; and

a third storing step of storing said node identifying information of said node connected to said port in said second memory to correspond to said port identifying information of said port to which said node is connected.

[c8]   A node detecting method as claimed in claim 7, wherein in a case where said interconnecting node has a stack connection,

said third receiving step includes receiving, from said interconnecting node, stack identifying information for identifying a stack of said interconnecting node and said node identifying information of said node connected to said stack, and

said third storing step includes storing said node identifying information of said node connected to said stack in said second memory to correspond to said stack identifying information received in said third receiving step.

[c9]

A node detecting method as claimed in claim 7, wherein in a case where a VLAN group is set to said port of said interconnecting node,

said third receiving step includes receiving, from said interconnecting node, VLAN identifying information for identifying said VLAN group and said node identifying information for identifying said node that belongs to said VLAN group, and

said third storing step includes storing said node identifying information of said node that belongs to said VLAN group in said second memory to correspond to said VLAN identifying information received in said third

receiving step.

[c10]   A node detecting method as claimed in claim 6, further comprising:
a third receiving step of receiving address information of a node connected
to said interconnecting node from said interconnecting node;
a third storing step of storing in said first memory said address information
of said node received in said third receiving step; and
repeating said second transmitting step, said second receiving step, said
judging step, said second storing step, said third receiving step and said
third storing step for said node connected to said interconnecting node.

[c11]   A node detecting method as claimed in claim 10, wherein, in said third
storing step, node identifying information of said node connected to said
interconnecting node is stored in said second memory to correspond to said
interconnecting node.

[c12]   A node detecting method as claimed in claim 11, further comprising:
determining a weight of a node being detected in advance depending on said
classification of said node being detected,
comparing a first weight of said node being detected having said
classification based upon said classification information received in said
second receiving step and a second weight of said node being detected
having a previous classification stored in said second memory,
merging node identifying information of said node having less weight based
upon said comparing into node identifying information of said node having
more weight, and
storing said merged node identifying information in said second memory to
correspond to said classification of said node having more weight.

[c13]   A node detecting method as claimed in claim 12, wherein said weight is
determined in such a manner that said weight corresponding to each of said
MAC node, said IP node, said SNMP node and said interconnecting node
increases in that order.

[c14]   A node detecting apparatus for detecting a node that operates as a device in
             a computer network, comprising:

             a transmitting unit operable to transmit a first detection signal to said node;

             a receiving unit operable to receive, from said node that received said first
             detection signal, address information of said node;

             a first memory operable to store said address information of said node
             received by said receiving unit;

             a judging unit operable to transmit a second detection signal to said node
             based on said address information of said node stored in said first memory,
             and to judge, in a case where classification information of said node is
             received from said node in response to said second detection signal, a
             classification of said node based on said classification information of said
             node; and

             a second memory operable to store said classification information of said
             node to correspond to said classification of said node.

[c15]   A node detecting program for detecting a node that operates as a device in a
             computer network, comprising:

             a transmitting module operable to transmit a first detection signal to said
             node;

             a receiving module operable to receive, from said node that received said
             first detection signal, address information of said node;

             a first storing module operable to store said received address information of
             said node;

             a judging module operable to transmit a second detection signal to said
             node based on said address information of said node stored in said first
             memory, and to judge, in a case where classification information of said
             node is received from said node in response to said second detection signal,
             a classification of said node based on said classification information of said
             node; and

             a second storing module operable to store said classification information of
             said node to correspond to said classification of said node.